Comparison of immediate results of percutaneous balloon valvuloplasty performed from two different arterial accesses for aortic valve stenosis in neonates.


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Introduction: percutaneous balloon valvuloplasty (BVP) for aortic valve stenosis in neonates is the treatment of choice in many centres. Mainly two arterial accesses are utilized: femoral artery and carotid artery. Separate results are well known, but there is lack of direct comparison. We compare immediate results of percutaneous BVP in infants depending on arterial access used.

Methods: In this retrospective study, we collect data regarding 64 neonates with critical or severe congenital aortic valve stenosis from last 12 years. 29 consecutive procedures were performed through surgically exposed carotid artery (CA group). 35 patients undergo BVP through puncture of femoral artery (FA group). All procedures were performed in the first 28 days of life. We compare relief of aortic stenosis, degree of aortic regurgitation (AR), procedural time and vascular complications.

Results: All procedures in FA group and all but one in CA group were performed. In one patient from CA group we were not able to cross severely stenotic aortic artery. Median age in CA group was 5 days (range 1-28 days) and in FA group 8 days (1-27 days). The median systolic pressure was 67mmHg (5-122mmHg) in CA group and 58mmHg (5-110mmHg) in FA group. Post procedure median systolic pressure was 12mmHg (0-44mmHg) in CA group and 14mmHg (2-50mmHg) in FA group. Immediately after the procedure there was one patient with severe AR (FA group), moderate AR was present in 2 patients in CA group, and in 6 in FA group, mild AR in 12 patients in CA group, and 16 in FA group. Trivial or no AR was find in 15 patients from CA group and 12 patients from FA group. Procedural time was longer in CA group 93±31 minutes compared to 76±25 minutes in FA group. There was no immediate vascular complications in CA group, in 3 patients from FA group critically impaired circulation to the leg occurred during procedure.

Conclusions: BVP performed both from carotid artery and femoral access is effective and safe. There is higher incidence of severe and moderate AR in FA group. More studies are needed to access long time safety and efficacy.